CB/NT 17.5.6
V1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

AUG 0 8 1995

Reply To
Attn Of: HW-113

Subject: Source Control Actions
Milestone 2 Source Control Status Reports for the Head of Thea Foss and Wheeler-Osgood Waterway Problem Areas
Commencement Bay Nearshore/Tideflats Superfund Site

To Interested Parties:

The purpose of this letter is to transmit to you two recent Source Control Status Reports from the Washington Department of Ecology (Ecology) concerning the Thea Foss and Wheeler-Osgood Waterways at the Commencement Bay Nearshore/Tideflats (CB/NT) Superfund Site, Tacoma, Washington. The enclosed reports present results of Ecology's efforts to address facilities and properties that are ongoing sources of contamination to the Thea Foss and Wheeler-Osgood Waterways. This report may be of interest to you because it may contain information relevant to a property or facility associated with you.

This report is being provided by the U.S. Environmental Protection Agency (EPA) to all interested parties, including members of the public, community groups, Natural Resource Trustees, and owners and operators of properties or facilities near the Thea Foss and Wheeler-Osgood Waterways.

Background

As outlined in the CB/NT Record of Decision (ROD) dated September 1989, EPA and Ecology are coordinating efforts to clean up contamination at the CB/NT site. The cleanup plan involves a two-phase approach that is being implemented in eight problem areas identified at the site. For each problem area, the cleanup plan requires that releases of contaminants to the marine environment be eliminated or reduced to an acceptable level. Once the sources of contaminants have been regulated, marine sediment cleanup activities will be initiated. The CB/NT ROD identifies Ecology as the lead agency for source identification and source control, and EPA as the lead agency for cleaning up contaminated marine sediments. Ecology's Commencement Bay Urban Bay Action Team (UBAT), which is part of the Toxics Cleanup Program at Ecology's Southwest Regional Office, has primary responsibilities for implementing source control at the site.

Ecology's source control efforts at the CB/NT site initially focus on identifying the facilities or sites that may release contaminants, and determining whether those facilities or sites are potential or confirmed ongoing sources of problem chemicals to a problem area. After identifying an ongoing source, facility-specific cleanup measures are implemented to control the release of contaminants to the marine environment and to ensure compliance with environmental regulations. Source identification and source control efforts do not focus on historical sources that have already ceased discharges of contaminants to the environment, except as required by ongoing monitoring programs.

In July 1993, EPA sent you a copy of the Milestone 1 Source Control Status Reports that documented all confirmed ongoing sources of problem chemicals to the Thea Foss and Wheeler-Osgood Waterway Problem Areas.

Milestone 2 Source Control Status Reports

The enclosed Milestone 2 Source Control Status Reports document the achievement of a source control milestone in the Head of Thea Foss and Wheeler-Osgood Waterway Problem Areas. **Milestone 2 is achieved when essential administrative actions (i.e., orders, permits, decrees) are in place to address all major sources of problem chemicals in a problem area.** Essential administrative actions are those actions that must be in place to ensure that major sources of problem chemicals to a problem area will be controlled so that sediment recontamination would not be expected to occur after the action is completed (i.e., after the source is controlled). Further definition and implications of Milestone 2 are described in EPA's Source Control Strategy Report (May 1992; pp. 36-40).

The achievement of Milestone 2 in the Head of Thea Foss and Wheeler-Osgood problem areas conclude an important step in the overall CB/NT cleanup strategy. At this point, source control activities have progressed sufficiently so that sediment remedial design activities could begin. As part of sediment remedial design, sampling activities would occur to more precisely characterize the contaminated area, including the area expected to recover through natural processes and determining the approximate volume to be remediated.

We would like to emphasize that Ecology's Source Control Status Reports Milestones 2 only describe Ecology's efforts to identify, control and/or eliminate **ongoing** sources of problem chemicals to the Thea Foss and Wheeler-Osgood Waterways. Thus, **the lists of facilities and sites included in the Ecology Status Reports should not be confused with EPA's list of Potentially Responsible Parties (PRPs) for Thea Foss and Wheeler-Osgood Waterway**. EPA has identified, and will continue to identify, PRPs for the Thea Foss and Wheeler-Osgood Waterways based on the liability criteria set forth in CERCLA Section 107. Finally, Ecology may make separate determinations in the future about whether additional facilities or properties that are contaminated, but do not appear to be sources to the Waterways, require investigation or cleanup under the Washington State Model Toxics Control Act.

If you have any questions regarding source control activities or the enclosed Status Reports, please contact me at 1-206-553-0171. If you would like other information about cleanup activities at the site, please contact Lori Cohen at 1-206-553-6523 or toll free at 1-800-424-4EPA.

Sincerely,

Christina Ngo

Christina Ngo
Superfund Site Manager

Enclosures

Addressees

Beaverson, Chris
Betcone, Bob Jr.
(b) (6)
Citizens for a Healthy Bay
Commencement Bay Cleanup Action Committee
(b) (6)
(b) (6)
Douthwaite, Charles
Elliott, Valerie
(b) (6)
(b) (6)
Heidenson, Carol
Henley, Mary
(b) (6)
Katich, Peter
Kennedy, Mike
Krausmann, Jeff
Liegel, Konrad
Lorbeir, Judith
(b) (6)
(b) (6)
Musgrove, Nancy
(b) (6)
Price, Mike
(b) (6)
(b) (6)
Smith, Dave
(b) (6)
(b) (6)
Spadaro, Philip
(b) (6)
Stetson, John
Sullivan, Bill
Taylor, Bob
(b) (6)

Advance Ross Corp.
BP Oil Co.
Burlington Northern
Chevron
City Marina
City of Tacoma, Utility Services
Coast Iron & Machine Works
Fick Foundry
George Scofield Co., Inc.
Globe Machine Manufacturing
Griffin Galbraith Fuel Co.
Harmon Cabinets, Inc.
Industrial Rubber & Supply Co.
J.M. Martinac Shipbuilding Corp.
Kleen Blast
Lewis R. Jones Co.

Marine Iron Works, Inc.
Metropolitan Parks District
Mobil Oil Corp.
Northwest Container Corp., Inc.
Olympic Chemical Company
Oregon Washington Railroad and Navigation Co.
Pacificorp
Parker Paint Manufacturing Co.
Pickering Industries
Pick's Cove Marina/Boatyard
Puget Sound Plywood
Rainier Plywood Co.
Shell Oil Co.
Time Superior Oil Co.
Totem Marine Moorage Association
Unocal Corp.
Union Pacific Railroad Company
Vlahovich Boat
Washington Department of Natural Resources
Washington Department of Transportation
Washington Natural Gas
Waterway Properties, Inc.
Wattles Company
West Coast Grocery Co.
Western Plastics Corp.
Western Steel Fabricators
Woodworth & Company, Inc.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 ◦ Olympia, Washington 98504-7775 ◦ (206) 407-6300

July 19, 1995

Ms. Christina Ngo
U.S. EPA, Region X
1200 6th Avenue, HW-113
Seattle, WA 98101-3188

Dear Ms. Ngo:

Re: Source Control Status Report for the Head of Thea Foss Waterway Problem Area, Milestone 2: Commencement Bay Nearshore/Tideflats Superfund Site

I have enclosed a report addressing source control Milestone 2 for the Head of Thea Foss Waterway Problem Area at the Commencement Bay Nearshore/Tideflats (CB/NT) Superfund Site. Milestone 2 is achieved when all necessary administrative actions (e.g., permits, orders, decrees) are in place to control the major sources of problem chemicals to the Head of Thea Foss Problem Area. The objective of Milestone 2 is to start a process that will lead to control of the release of problem chemicals from a source.

The Milestone 1 Report for the Head of Thea Foss Problem Area (submitted to EPA in July 1993) lists five major sources:

- J.M. Martinac Shipbuilding
- The Tacoma Coal Gasification site (an expansion of the Tacoma Spur site, which is the site name used in the CB\NT Record of Decision)
- Three City of Tacoma storm drains (outfall numbers 237a, 237b, and 230).

In addition, American Plating (also referred to as the "Lewis R. Jones Property") is included in this report because it was listed as a major source in EPA's Record of Decision for the Commencement Bay Nearshore/Tideflats Superfund Site.

This report describes the administrative actions in place to control these major sources. Eight other confirmed sources were listed in the Milestone 1 Report (six in the July 1993 report and two more in an April 1994 addendum). When administrative actions are in place to control these sources, the Department of Ecology will describe those actions in a Milestone 4 Report for the Head of Thea Foss Waterway Problem Area.

Sincerely,

Dave Smith

Dave Smith
Urban Bay Action Team Supervisor
Toxics Cleanup Program
Southwest Regional Office

DS:jr
Enclosure

Source Control Status Report for the Head of Thea Foss Waterway Problem Area

Milestone 2: Essential Administrative Actions in Place for Major Sources

This report identifies the administrative actions in place to control the major sources of problem chemicals to the Head of Thea Foss Waterway Problem Area. The Milestone 1 Report for the Head of Thea Foss Waterway Problem Area (submitted to EPA in July 1993) and the Commencement Bay Nearshore/Tideflats (CB/NT) Record of Decision list five major sources: the Tacoma Coal Gasification Site (referred to in the CB/NT Record of Decision as "Tacoma Spur"), J.M. Martinac Shipbuilding, and three City of Tacoma Storm Drains (outfall numbers 237a, 237b, and 230). Outfalls #237a and #237b are commonly referred to as the "twin 96-ers." This report describes the administrative actions in place to control these major sources.

In addition, American Plating (also referred to as the "Lewis R. Jones Property") is included in this report because it was listed as a major source in EPA's Record of Decision for the Commencement Bay Nearshore/Tideflats Superfund Site.

Eight other confirmed sources were listed in the Milestone 1 Report (six in the July 1993 report and two more in a April 1994 addendum). When administrative actions are in place to control these sources, the Department of Ecology (Ecology) will describe those actions in a Milestone 4 Report for the Head of Thea Foss Problem Area. Ecology has determined that none of these other sources are currently of a magnitude that they should be considered major sources.

Major sources are those that have been identified as such in the Commencement Bay Nearshore/Tideflats Record of Decision and the Integrated Action Plan. Control of the major sources is important because these sources are most directly linked with current sediment impacts. Milestone 2 is achieved when all necessary administrative actions (e.g., permits, orders, decrees) are in place to control the major sources of problem chemicals to the Head of Thea Foss Problem Area. The objective of Milestone 2 is to start a process that will lead to control of the release of problem chemicals from a source.

Tacoma Coal Gasification Site

The "Tacoma Coal Gasification Site" is located adjacent to the southwest corner of the head of Thea Foss Waterway and is bounded by South 21st Street, South 24th Street, "A" Street, and Thea Foss Waterway. The site includes properties owned by the City of Tacoma, the Metropolitan Park District, the Washington State Department of Transportation, and Waterway Properties, Inc. In addition, the Washington State Department of Transportation owns a right-of-way on this site beneath the SR 705 Spur highway and the SR 501 Spur (construction ongoing).

During the summer of 1992, Ecology inspectors observed seepage of free product (coal tar) into the waterway through intertidal sediments and also into a storm drain line (DA-1 line) which connects to the City of Tacoma's (City) storm drain outfall #237a.

The site is considered a major source of problem chemicals to the Head of Thea Foss Waterway Problem Area due to contamination of ground water, soils, and storm water by Low Molecular Polycyclic Aromatic Hydrocarbons (LPAH) and High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAH). Other chemicals have also been found in the soil and ground water, as described below.

The Environmental Protection Agency (EPA) Record of Decision refers to the site as the "Tacoma Spur" site. Ecology renamed the site in 1992 to differentiate between the cleanup conducted by the Washington Department of Transportation in 1984 under the Highway 705 Spur right-of-way ("Tacoma Spur") and the additional cleanup work scheduled for 1996. This additional work will address the entire site's threat to the waterway (including property located between the Highway 705 Spur right-of-way and Thea Foss Waterway).

Ground water and soil became contaminated when coal tar was buried at the site during the operation of a coal gasification facility between 1884 and 1924. Coal tar is the waste material left over when coal is

processed to create coal gas. The gas was used for lighting and heating. In addition, three 105,000 gallon tanks of crude oil and other products were stored at the site until 1977 and may have contributed further to the contamination problem.

In 1984, the Washington State Department of Transportation (WSDOT) discovered extensive deposits of coal tar during construction of the SR 705 Spur highway. Coal tar excavated in the construction zone (SR 705 right-of-way) was taken to a hazardous waste landfill at Arlington, Oregon. Contaminated soils excavated in the construction zone were encapsulated near the location where SR 705 and Interstate 5 intersect. Coal tar and contaminated soils that were not excavated were left in place unless present as a surface outcrop at final grade, in which case they were excavated two feet below final grade and capped with fill material.

Between 1984 and 1989, WSDOT also analyzed soil and ground water samples from boreholes and wells between the waterway and the right-of-way. Total PAH concentrations in ground water were as high as 11,412 ug/l PAH.

During the spring and summer of 1992, Ecology's sampling confirmed that coal tar contaminants had been entering the DA-1 storm drain system within the SR 705 right-of-way and moving to the Thea Foss Waterway via storm drain 237a (west twin-96er). A sample collected in April 1992 from a storm drain catch basin in the DA-1 line consisted of sludges containing 1,137,000 ug/kg LPAH and 229,600 ug/kg HPAH. The Commencement Bay Sediment Quality Objectives are 5,200 ug/kg for LPAH and 17,000 ug/kg for HPAH. During the winter of 1992, the City cleaned out the affected storm drainage structures and inserted plugs in the affected storm drain lines. The plugs did not stay in place, so the City is examining other options to prevent the DA-1 line from acting as a pathway for migration of coal tar to the waterway.

During the summer of 1992, Ecology also observed coal tar entering the water way at a seep along the shoreline of the site. A seep sample was taken and analyzed; it contained 4,741 ug/l total PAH. The Marine Acute Water Quality Criterion for total PAH is 300 ug/l.

On October 28, 1993, Ecology and six other parties signed a MTCA Agreed Order requiring the six parties (with the City of Tacoma as the lead) to conduct a remedial investigation, evaluate interim cleanup options, and conduct an interim remedial action. The interim remedial action is intended to prevent further release of contaminants from the site to the waterway via subsurface pathways and storm drains. The City of Tacoma performed a remedial investigation in 1994 and produced a draft report (Black and Veatch, 1994). The City of Tacoma is conducting further investigation work during the summer of 1995 to answer questions raised as a result of the 1994 investigation work. The purpose of the additional work is to better define the lateral extent of contamination and subsurface stratigraphy. Based on the results of the additional investigation work, Ecology and the Potentially Liable Parties will agree on an interim cleanup action. Ecology expects completion of the interim cleanup work by December, 1996.

As indicated above, in 1984-1985, WSDOT carried out substantial cleanup of coal tar and contaminated soil under the 705 Spur.

American Plating ("Lewis R. Jones property") (2110 E. "D" St.)

1. Introduction

Ecology has evaluated data collected from soils and ground water on the American Plating site (also known as the "Lewis R. Jones" site), located at 2110 East "D" Street, Tacoma, Washington. In the Commencement Bay Nearshore/Tideflats (CBN/T) Milestone 1 Report for the Head of Thea Foss Waterway (dated July 1, 1993), Ecology concluded that American Plating was not a confirmed source of problem chemicals to the Head of Thea Foss Waterway. This conclusion was based on Resource Conservation and

Recovery Act (RCRA) facility assessments conducted by Applied Geotechnology, Inc. (AGI) for American Plating in 1988-1989 (consolidated report by SAIC, 1994) and Ecology seep/drain sampling conducted May 1992 (data included in this report). Since that time, Lewis R. Jones and EPA collected additional ground water data during RCRA facility assessments conducted in November/December 1993 (AGI, 1994) and September 1994 (PRC, 1995). In addition, the City of Tacoma collected bank surface sediment samples in 1994 for sediment remedial design planning (Hart Crowser, 1994). Review of the new data does not change Ecology's original conclusion in the Milestone 1 Report.

American Plating was the site of a metal plating facility from 1955 to 1986. The property is 1.4 acres in size and is currently owned by Lewis R. Jones. Since 1986, the property has been vacant and administered as a U.S. EPA Region 10, RCRA site. EPA has reached a preliminary conclusion that closure per 40 CFR, Part 265 may be required.

2. Surface Soil Runoff as a Pathway for Migration of Problem Chemicals

Erosion of surface soils into the Thea Foss Waterway does not appear to be a pathway for migration of contaminants to waterway sediments. In August 1994, seven surface sediment samples were taken by the City of Tacoma on American Plating's property along the bank of the Thea Foss Waterway (Hart Crowser, 1994). The work was conducted as part of sediment remedial design for Thea Foss Waterway, which is described in an Administrative Order on Consent between the City of Tacoma and EPA. The surface sediment bank samples taken from American Plating's property were spaced 25 feet apart and composited for chemical analysis (metals, semi-volatile, PCBs/pesticides, and conventionals). All problem chemicals were included in the analyses. Figure 1 includes a map and other details regarding the sampling. The only problem chemical exceeding a Commencement Bay Sediment Quality Objective was HPAH and the exceedance was only a factor of about one.

In 1988-1989, AGI took surface soil samples at locations indicated on Figure 2 (black dots) (SAIC, 1994). The samples were analyzed for all the metals that are problem chemicals for Thea Foss Waterway, except mercury. The organic chemicals analyzed (certain chlorinated organics) included none of the organic chemicals that are problem chemicals for Thea Foss Waterway.

Figure 2 shows that cadmium is present in surface soils at very high concentrations in the northeast corner of the site (Commencement Bay Sediment Quality Objective is 5.1 ppm), but that concentrations fall off very quickly between the "hot spot" and the waterway. The fact that the cadmium has not migrated significantly toward the waterway (e.g., via soil erosion or soil transport) is likely due to the flat terrain, as shown on Figure 3. Other metal concentrations follow a similar distribution at the site; cadmium was chosen for the contour map because it is found in the highest concentrations relative to cleanup levels in the Washington State Model Toxics Control Act.

Because concentrations of chemicals in the surface sediments on the banks adjacent to the waterway do not exceed Commencement Bay Sediment Quality Objectives (or just barely for HPAHs), Ecology does not believe that American Plating is a source of problem chemicals to the waterway via surface runoff at this time. However, if surface soil in the northeast portion of the property is redistributed on the site surface, runoff could carry high levels of metals to the waterway.

The waterway could also be impacted by contaminated storm water runoff or soil erosion if contaminated subsurface soils were excavated and placed near the waterway. In 1988-1989, AGI took subsurface soil samples from borings and ten of the twelve well drillings shown in Figure 4 (SAIC, 1994). Soil samples were taken from all borings at 2-4 feet and 5-5.6 feet. Soil samples were also taken from four borings (S-16, S-19, S-22, and S-23) at 7.5-9 feet for nine wells. Figure 4 shows boring and well locations with circles around the numbers indicating that one or more metals were detected at levels exceeding Commencement Bay Sediment Quality Objectives, which were used as screening criteria. The depths where

exceedances were observed are also noted on Figure 4. Most of the exceedances were found near or beneath Building #1.

3. Ground Water as a Pathway for Migration of Problem Chemicals

During 1988-1989, two unfiltered and four filtered ground water samples were taken by AGI from each of seven wells drilled to the fill/marsh aquifer (5-9 feet bgs) and each of five wells drilled to and screened at the sand aquifer (depth range unclear from reports) (SAIC, 1994). The seep shown on Figure 4 near MW-3 and MW-8 was also sampled. In November/December 1993 and September 1994, AGI (working for Lewis R. Jones, 1993) and PRC (working for EPA, 1994) took one filtered sample and one unfiltered sample using a low-flow method from each of the following wells: MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-10, and MW-12 in 1993: MW-1, MW-2, MW-4, MW-6, MW-7, MW-11, and MW-12 in 1994 (AGI, 1994; PRC, 1995). PRC took two samples from MW-12 and labeled the duplicate "MW-13." "MW-20" is actually a blank. All ground water samples were analyzed for the same parameters that were analyzed in the soil samples. Well locations are shown in Figure 4.

With the exception of MW-10 and MW-12, only occasional minor exceedances of marine chronic water quality criteria for Thea Foss Waterway problem chemicals were observed in the 1993 and 1994 data, while the 1988-1989 data showed significant exceedances for several metals in filtered samples from most wells. The difference in the levels between the 1988-1989 data set and the 1993-1994 data set is likely due to a difference in the method used to collect the water samples. The 1993-1994 data were collected using a low-flow method, thereby reducing the amount of silt disturbed and collected during the ground water sampling. Ground water seeping into the waterway is best represented by the low-flow collection method.

MW-10 is not located near the waterway, and therefore, the water samples from this well are not likely to represent concentrations of contaminants in ground water that seep into the waterway.

MW-12 (fill aquifer) is located near the waterway and showed high levels of all problem metals in filtered and unfiltered samples in 1993 and lower levels of all problem metals in dissolved samples only in 1994. The results are shown below. The duplicate samples taken in 1994 were averaged.

Metal	Month/Year of Sampling	Concentration (ppb) Filtered (Dissolved)	Unfiltered (Total)	Marine Chronic Water Quality Standard (ppb) (to compare with unfiltered)
Cadmium	Nov/Dec 1993	1,700	1,700	9.3
	Sept 1994	< 10	228	9.3
Copper	Nov/Dec 1993	73	89	2.9
	Sept 1994	< 15	25	2.9
Lead	Nov/Dec 1993	Data Quality Poor		8.5
	Sept 1994	< 3	8	8.5
Zinc	Nov/Dec 1993	910	910	86
	Sept 1994	26	180	86
Nickel	Nov/Dec 1993	880	890	8.3
	Sept 1994	140	158	8.3

Because none of the other fill aquifer wells near the waterway (MW-3, MW-4, and MW-5) showed exceedances of marine chronic water quality standards, the high levels observed in MW-12 appear to be a localized problem. Seeps were not observed near MW-12.

In 1992, Ecology took water samples from a pipe (drain 748) and seep, where noted on Figure 4, and analyzed the samples for metals that are problem chemicals for Thea Foss Waterway. Some metal concentrations exceeded marine chronic water quality standards, but none of the exceedances approached the magnitude of the highest exceedances observed in MW-12. The data are as follows:

Total Cadmium:	5 ppb in water from both drain 748 and seep beneath the drain.
Total Lead:	50 ppb in water from both drain 748 and seep beneath the drain.
Total Nickel:	25 ppb in water from both drain 748 and seep beneath the drain.
Total Copper:	8 ppb in water from both drain 748 and seep beneath the drain.
Total Mercury:	0 ppb in water from both drain 748 and seep beneath the drain.
Total Zinc:	39 ppb in water from drain 748, and 37 ppb in water from seep.

Similar results were obtained by AGI in 1988-1989 (SAIC, 1994) for the seep samples taken near MW-3 and MW-8. Unfiltered water seep samples showed the following concentrations of metals (maximum levels observed in ppb): cadmium (0.5), copper (50), nickel (ND), lead (8), and zinc (70). A few filtered samples actually exceeded the unfiltered values: cadmium (3) and nickel (6).

An abandoned discharge line from Building #1, which contained most of the plating lines, may have some relationship to the high metal levels observed in MW-12. Although the line was sealed in 1974, as indicated on Figure 4, gravel packing may exist around the line, serving to expedite the flow of contaminated ground water beneath Building #1, and MW-12 may also be associated with an underground storage tank beneath Building #1 (PRC, 1995; p. ES-3).

The differences in concentrations of filtered samples between the 1993 and 1994 sampling events may be related to differing hydrology. The 1993 samples were taken during wet weather when the water table was likely high, and 1994 samples were taken at the end of a drought when the water table was likely low.

In conclusion, ground water is contaminated with metals (particularly cadmium) in a very localized area on the northwest part of the property. Metals are not generally very mobile in ground water, and no evidence of significant metal loading to the waterway has been evident from seep samples taken at two locations on the property south of MW-12 or from composited surface sediment samples that were collected along the nearshore bank. Ecology does not recommend follow-up action based on this information beyond that already planned for the site under EPA RCRA authorities.

J.M. Martinac Shipbuilding (1501 E. "D" Street)

The J.M Martinac Shipbuilding facility ("Martinac") covers approximately 6.2 acres. Portions of the site are leased from the City of Tacoma (office and engineering building) and the Glacier Park Company (north side of property along fence line). The remainder of the property is owned by Joseph M. Martinac. Martinac's facility consists of a paved upland area, two covered marine ways which extend from the upland area through a tidal zone to open water on Thea Foss Waterway, and docks extending over Thea Foss Waterway.

Martinac has been constructing vessels at its present location on the east bank of Thea Foss Waterway since 1924. Predominant activities are the design and construction of new marine vessels. In recent years, Martinac has constructed tuna seiners, tugs, and smaller patrol craft for the U.S. Navy. Martinac also conducts a small amount of ship repair work. Ship building and repair activities include welding, cutting, machining, sandblasting, painting, carpentry, pipe fitting, and electrical wiring.

In the Milestone 1 Report for the Head of Thea Foss Waterway Problem Area, Ecology listed J.M. Martinac as a source two problem chemicals (copper and zinc) to the waterway. Copper and zinc are contituents of sand blast grit.

Ecology uses its National Pollutant Discharge Elimination System (NPDES) permitting authority to regulate activities at ship building and repair facilities that could pollute waters of the state. In January 1991, Ecology issued a NPDES Permit No. WA004028-2 to Martinac addressing pollution control and cleanup needs. Regulated activities include:

- direct (or indirect via storm drain system) discharges of contaminants to the waterway through sand blasting, steam cleaning, spray painting, and occasional high pressure washing;
- disposing of bilge water from pier-side vessels (pumped and disposed of by a contractor);
- handling and storage of paint, solvents, oil, and other chemicals to prevent spills; and
- maintenance of hoses, soil chutes, and piping to prevent leaks and use of drip pans to capture potential leaks.

Examples of Martinac's best management practices include tarping of vessels during spray painting, containment of grit during sand blasting operations, and removing spent sandblast grit from the upland work areas. Martinac has been submitting monitoring data as required by the permit. Further work for 1995-1996 includes cleanup of a grit-covered beach area. The beach cleanup will be conducted under a MTCA Agreed Order.

City of Tacoma Storm Drains: 237a, 237b, and 230

1. Introduction

Storm drain outfalls #237a, #237b, and #230 are part of the City's municipal stormwater system. The locations of these outfalls are shown in the Milestone 1 Report for the Head of Thea Foss Waterway Problem Area (July 1, 1993).

Outfalls 237a, 237b, and 230 were placed on List 3 of the Milestone 1 Report for the Head of Thea Foss Waterway Problem Area due to exceedances of Commencement Bay Sediment Quality Objectives (CBSQO's) in solids centrifuged from outfall water samples by the City. Quality assurance documentation was not available for most data. Because the Thea Foss and Wheeler-Osgood Waterway Problem Areas are interconnected, Ecology combined the problem chemicals for all three Waterway Problem Areas. The results are presented below:

Outfall 237a ("west twin-96er") -- Mean concentrations of problem chemicals in solids centrifuged from outfall water in 1986-1988 (16 samples) exceeded CBSQOs for zinc, mercury, LPAH, bis-2-ethylhexylphthalate (BEHP), benzylbutylphthalate (BBP), 4-methylphenol, dimethylphthalate, and diethylphthlate. Only three samples were collected after 1988. One sample collected during dry weather in 1993 showed exceedances of CBSQOs for zinc, lead, HPAH, diethylphthalate, and 4-methylphenol. The other sample was collected during wet weather in 1993 and showed exceedances of CBSQOs for BEHP and BBP.

Outfall 237b ("east twin-96er") -- Mean concentrations of problem chemicals in solids centrifuged from outfall water in 1986-1988 (17 samples) exceeded CBSQOs for zinc, BEHP, nickel, diethylphthalate, LPAH, and HPAH. One sample was collected after 1988, (dry weather in 1993), and that sample showed an exceedance of the CBSQO for BEHP.

Outfall 230 -- Mean problem chemical concentrations in solids centrifuged from outfall water in 1986-1989 (17 samples) exceeded CBSQOs for copper, zinc, lead, mercury, LPAHs, HPAHs, BEHP, and BBP. Three samples were collected after 1989. One sample collected during dry weather in 1992 exceeded CBSQOs for zinc, copper, cadmium, LPAHs, HPAHs, BEHP, and BBP. A sample collected during dry weather in 1993 exceeded CBSQOs for zinc, mercury, copper, cadmium, HPAHs, BEHP, and BBP. Finally, a sample collected during wet weather in 1993 exceeded CBSQOs for zinc, lead, mercury, HPAHs, BEHP, and BBP.

2. Source Investigations and Source Control Work in the 1980's

a. City of Tacoma Surface Water Quality Study, 1988-1990 (City of Tacoma, 1990)

In August 1986, the City signed a Memorandum of Agreement (MOA) with Ecology that required the City to perform an extensive study of five major drainage basins discharging to Commencement Bay and "implement a pollution control strategy which will cause the abatement of pollutants known to be discharging from the City of Tacoma publicly owned storm drain system into the Commencement Bay Waterways and Puget Sound."

Of the five basins studied, three discharge to Thea Foss Waterway (outfalls #237a, #237b, and #230) one discharges to the Wheeler-Osgood Waterway (outfall #254) and one discharges to Sitcum Waterway (outfall #172).

Major elements of the City's study included:

i) Commercial/Industrial Inspections

Extensive physical inspections, block by block, were carried out by the City at all businesses within the storm drainage basin. In the areas of the drainage basin that were predominately residential or office buildings, the inspections consisted of a drive-by. All other commercial/industrial facilities were entered and inspected.

In situations where there was an illegal or inappropriate discharge into the storm drain system, the City required the owner or responsible party to stop the discharge and/or to implement BMPs. BMPs ranged from improving "housekeeping practices" to physically discontinuing a discharge and providing appropriate engineering plans for the proper connection to the sanitary sewer. Plans were to include any required pretreatment devices. The requirements for redirection of a discharge were documented by letter from the City to the facility, and included in the correspondence was a time frame within which improvements were expected to be accomplished.

Follow-up letters and/or inspections were conducted by the City for all required source control actions, as needed, to ensure compliance.

ii) Manhole Survey

In order to develop basic information on illicit/illegal discharges into the storm water system, a manhole survey within the drainage basin was performed. The manhole survey focussed on identifying illegal sanitary discharges to the stormwater system. The manhole survey crew started investigations at the terminus of each storm outfall pipe and followed the drains upstream. Every manhole cover that could be located was removed and the presence or absence of flow was noted.

At each manhole where water flow existed, the water was sampled for fecal coliform/fecal strep ratio to determine if human sanitary waste was present. In addition, observations were made at each manhole for any side connections and any unusual color or smell. Where access was possible, side connections were also sampled for bacteria.

At each manhole sampled, maps were drawn showing connections and flow direction. An estimate of flow was made on each line and other observations were recorded. Later in the manhole survey, pH and conductivity readings were checked as requested by the Tacoma-Pierce County Health Department (TPCHD). When a particular problem was discovered that required additional study or remediation, it was forwarded to the City's Source Control Section for action by its staff.

iii) Sampling and Analysis at Outfalls

Outfall sampling and analysis was performed over nine quarters for metals and organic compounds, including some of the Thea Foss problem chemicals. The source testing included six wet weather sample events and nine dry weather sample events for both whole water and the particulate fraction of storm water discharges.

b. Ecology

During the 1980s, Ecology assisted the City with source discovery inspections of properties draining to the Thea Foss Waterway. In addition, in 1983 Ecology sampled and analyzed 2-5 water samples from drains 230, 237a, and 237b for priority pollutants (Johnson and Norton, 1984).

c. Tacoma-Pierce County Health Department (TPCHD)

Starting in the mid 1980s, the TPCHD started monitoring water from municipal stormwater drains that discharge to Thea Foss Waterway (and other waterways) for conventional pollutants once a month, and analyzed water samples for metals when certain indicators suggested that a major slug of metals might be present. TPCHD notified the City of suspicious discharges.

2. Source Investigations and Source Control Work in the 1990s

a. City of Tacoma, NPDES Municipal Stormwater Permit

On July 5, 1995, Ecology issued the City of Tacoma a NPDES Municipal Stormwater Permit. The permit includes an accelerated schedule of permit requirements for that portion of the city that drains to Thea Foss and Wheeler-Osgood Waterways. The accelerated schedule is needed to ensure that source control actions were adequately in place prior to sediment remediation. The City must submit a draft Stormwater Program for the Thea Foss and Wheeler-Osgood Waterways to Ecology for review by September 1, 1995, and must submit a final program to Ecology by January 1, 1996. The program is a strategy for source control actions, which will set priorities, describe how ongoing sources will be discovered (using existing information, future inspections, and/or future sampling), describe how ongoing sources will be controlled, and set schedules for implementation tasks. Ecology will review and approve this stormwater program in coordination with EPA.

Once Ecology determines that the Thea Foss and Wheeler-Osgood Waterway and Storm Drain Source Control Program has achieved source control under the Commencement Bay Nearshore/Tideflats Superfund effort, future source control needs will be carried out under the schedule established for the entire City.

b. Ecology

Ecology's Water Quality Program is responsible for issuing baseline industrial stormwater NPDES permits. All industries, including those discharging to Thea Foss outfalls, are required to have coverage under the baseline stormwater permit. Industries covered under the baseline permit were required to have a pollution prevention plan completed by November 18, 1993.

c. Tacoma-Pierce County Health Department (TPCHD)

From 1990 to 1994, the TPCHD continued monitoring major municipal stormwater drains that discharge to Thea Foss Waterway (and other waterways) for conventional pollutants once a month, and analyzed water samples for metals when certain indicators suggested that a major slug of metals might be present. TPCHD notified the City of suspicious discharges. The program was discontinued in 1995 due to budget cutbacks.

REFERENCES

1. AGI, 1994. Supplemental Groundwater Investigation. American Plating Co. Facility (WAD 083350231). February 11, 1994.

2. Black and Veatch Waste Science, Inc. 1994. Draft Focused Site Characterization and Interim Remedial Action Evaluation Report -- The Tacoma Coal Gasification Site. Prepared for the City of Tacoma Department of Public Works. April, 1994.

3. City of Tacoma. 1990. City of Tacoma Surface Water Quality Study. Public Works Department, Sewer Utility. January 1990.

4. Hart Crowser, 1994. Round 1 Data Evaluation Report. Thea Foss and Wheeler-Osgood Waterways, Tacoma, WA. December 14, 1994.

5. Johnson and Norton. 1984. Completion Report on WQIS Project 5 (Part 1) for the Commencement Bay Nearshore/Tideflats Remedial Investigation: Priority Pollutants and Other Contaminants in City Waterway Storm Drains, September-November 1983. Washington State Department of Ecology Environmental Investigations and Laboratory Services Program. Memo to Jim Krull dated December 13, 1984.

6. PRC, 1995. Final Report for Resource Conservation and Recovery Act Comprehensive Groundwater Monitoring Evaluation. American Plating Company, Inc., (Lewis R. Jones), Tacoma, WA. Prepared for the U.S. Environmental Protection Agency Region 10. January 5, 1995.

7. SAIC, 1994. Final RCRA Facility Assessment. Preliminary Assessment Report. American Plating, Inc. Tacoma, WA. EPA I.D. #WAD 08335 0231. June 1994.

DS:cg(1\wq)

Figure 1 From: Hart Crowser (1994)

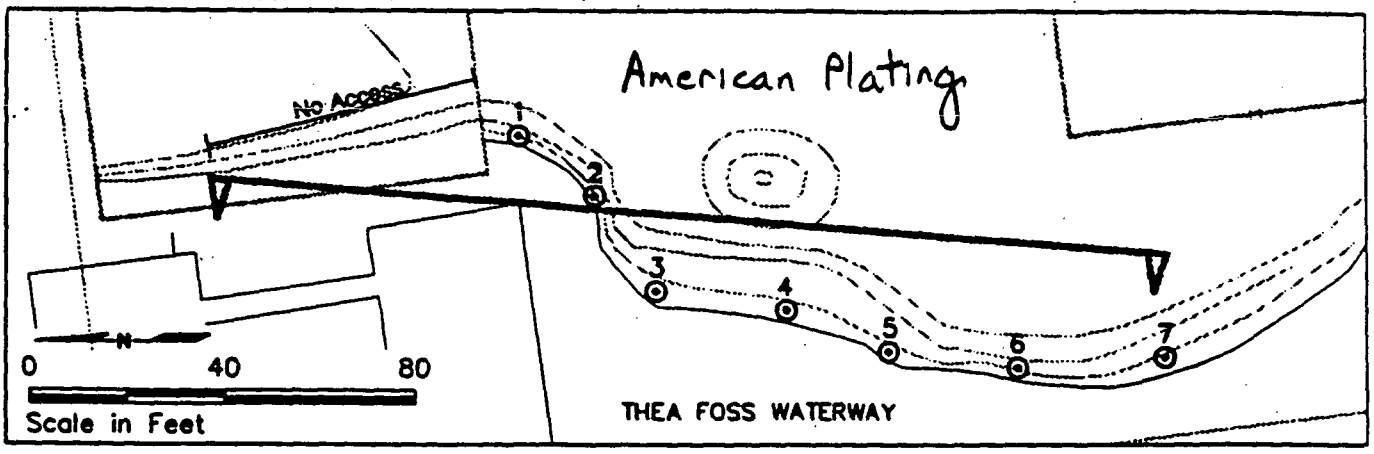
Hart Crowser
J-4072-09

Intertidal Bank Composite Sampling Location RD-B17

Lab Sample I.D.: 04-B
Sample Method: Hand Collected
Sample Type: Surface Sediment Composite
Sample Depth: 0 to 10 cm (0 to 0.3 ft.)

No. of Samples: 7
Spacing Interval: 25 feet
Mudline Elevation
in Feet MLLW: -0.7 to +1.8

Bank Sampling Location Plan



⊙1 Subsample Location and Number

——— 0.0' Elevation Contour
Contour Interval = 2 Feet

Extent of Bank Sediment Sampling Interval

Sediment Description

Subsample	Description
1, 2	(Soft), dark gray to black, slightly gravelly, slightly sandy, clayey "organic" SILT with substantial organic detritus, shell fragments, and slight petroleum odor.
3, 4, 5	(Loose), medium brown, silty, medium to fine SAND with moderate shell fragments and trace gravel (<1 inch).
6, 7	(Soft), light brown, slightly gravelly, sandy SILT with scattered shell fragments.

Composite Description: (Loose), wet, black, lightly clayey, slightly gravelly, silty, fine SAND with moderate organic detritus and shell fragments.

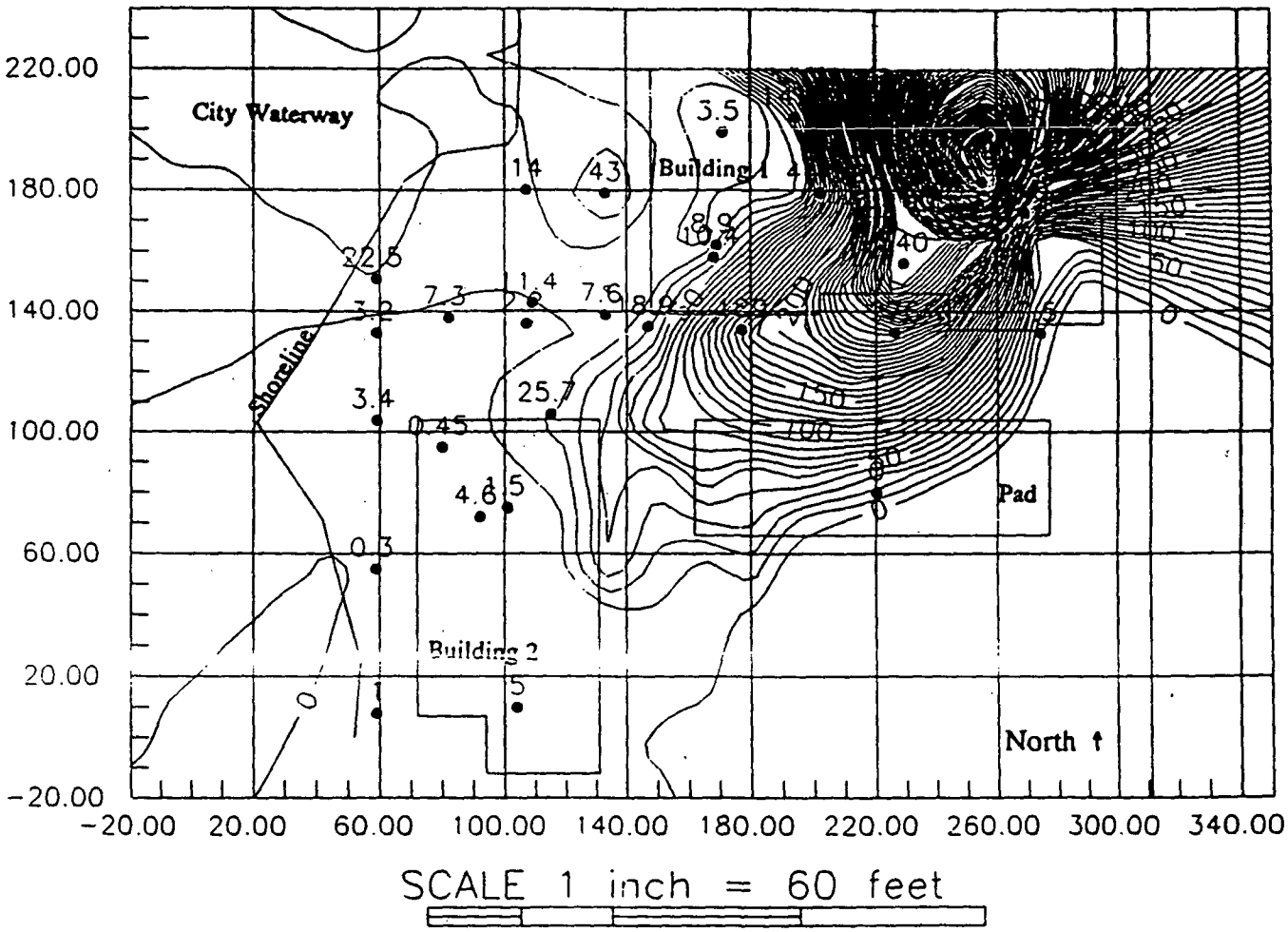
Comments: None.

Upland Site Description: American Plating Inc.
Total Sample Volume: 56 oz.
Date/Time Sampled: 8/17/94 10:00

Figure A

Figure 2

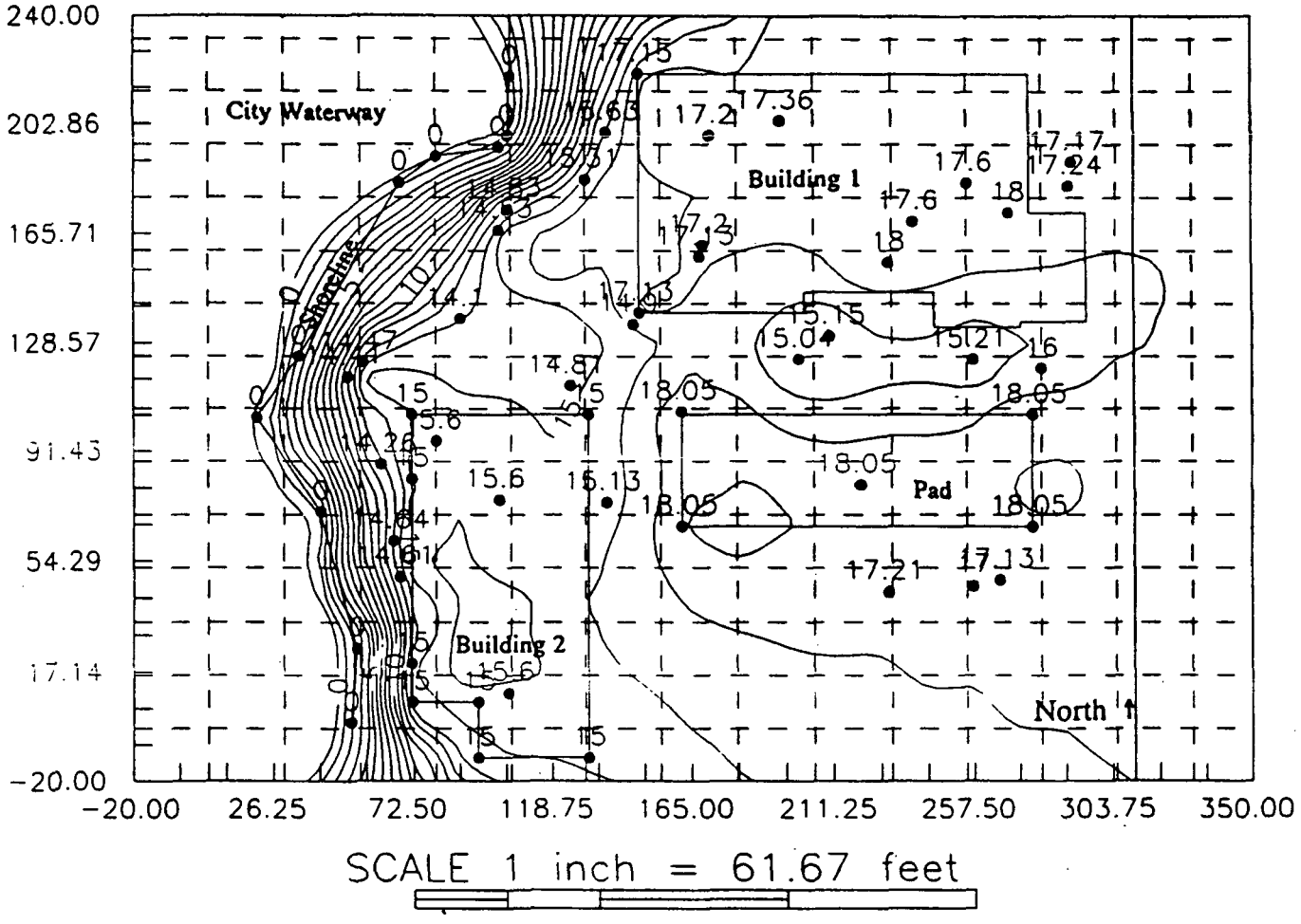
American Plating Surface Soil Cadmium



From: SAIC (1994)

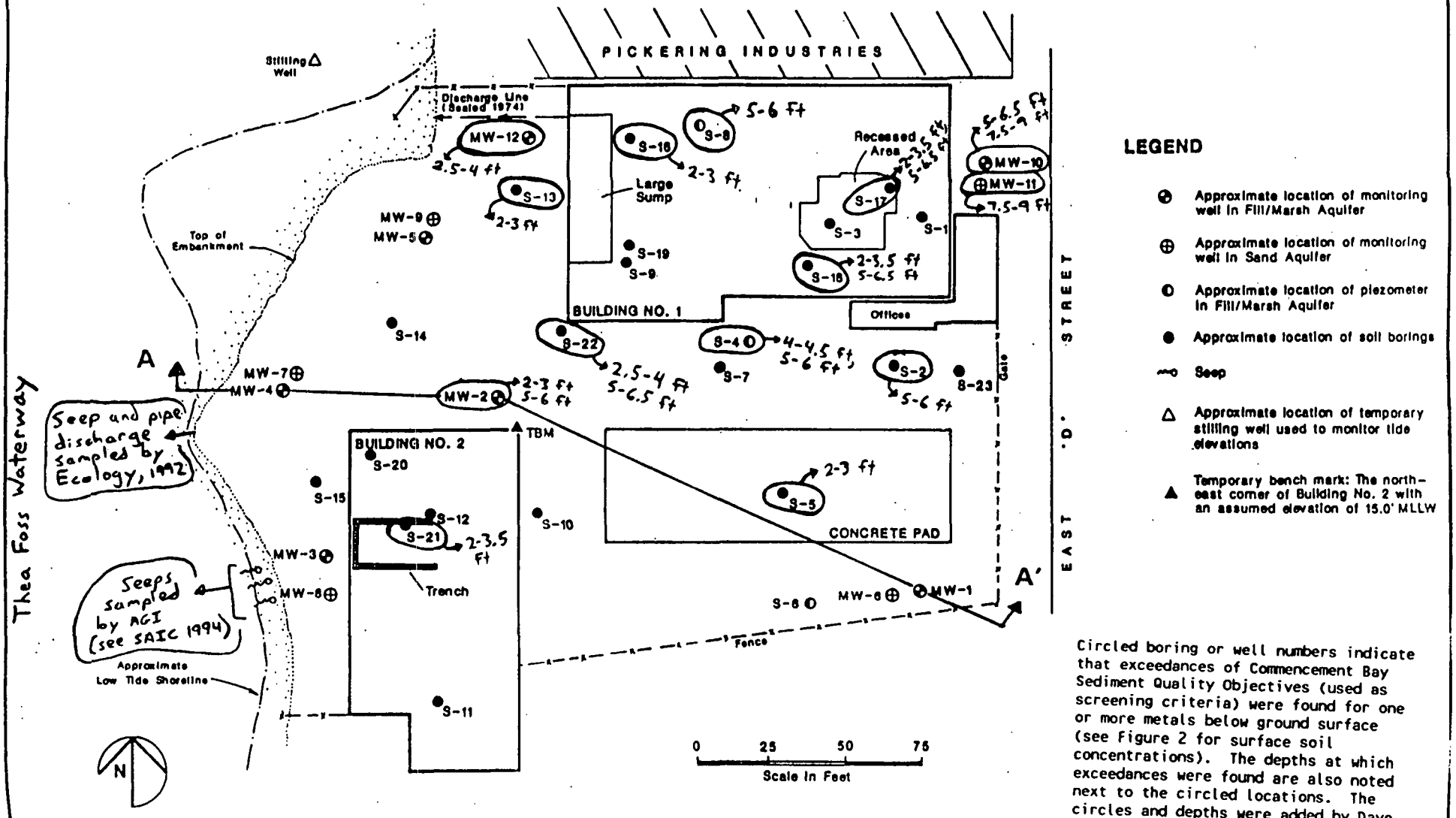
Figure 3

American Plating Surface topography



From: SAIC (1994)

Figure 4



LEGEND

- ⊕ Approximate location of monitoring well in Fill/Marsh Aquifer
- ⊕ Approximate location of monitoring well in Sand Aquifer
- ◐ Approximate location of piezometer in Fill/Marsh Aquifer
- ● Approximate location of soil borings
- Seep
- △ Approximate location of temporary stilling well used to monitor tide elevations
- ▲ Temporary bench mark: The north-east corner of Building No. 2 with an assumed elevation of 15.0' MLLW

Circled boring or well numbers indicate that exceedances of Commencement Bay Sediment Quality Objectives (used as screening criteria) were found for one or more metals below ground surface (see Figure 2 for surface soil concentrations). The depths at which exceedances were found are also noted next to the circled locations. The circles and depths were added by Dave Smith for this report only.

From: SAIC (1994)

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Boring and Well Location Map

American Plating, Inc.
Tacoma, Washington

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,263.004	ECR		14 April 89	KLC	2 May 89

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 ◦ Olympia, Washington 98504-7775 ◦ (206) 407-6300

August 3, 1995

Ms. Christina Ngo
U.S. Environmental Protection Agency
1200 Sixth Avenue, HW-113
Seattle, WA 98101-3188

Dear Ms. Ngo:

Re: Source Control Status Report for the Wheeler-Osgood Waterway Problem Area, Milestone 2: Commencement Bay Nearshore/Tideflats Superfund Site

I have enclosed a report addressing source control Milestone 2 for the Wheeler-Osgood Waterway Problem Area at the Commencement Bay Nearshore/Tideflats (CB/NT) Superfund Site. Milestone 2 is achieved when all necessary administrative actions (e.g., permits, orders, decrees) are in place to control the major sources of problem chemicals to the Wheeler-Osgood Waterway Problem Area. The objective of Milestone 2 is to start a process that will lead to control of the release of problem chemicals from a source.

The Milestone 1 Report for the Wheeler-Osgood Waterway Problem Area (submitted to EPA in July, 1993) and the CB/NT Record of Decision list one major source: City of Tacoma Storm Drain #254. This report describes the administrative actions in place to control this major source. Three other confirmed sources were listed in the Milestone 1 Report; when administrative actions are in place to control these sources, Ecology will describe those actions in a Milestone 4 Report for the Wheeler-Osgood Waterway Problem Area.

Sincerely,

Dave Smith

Dave Smith
Urban Bay Action Team Supervisor
Toxics Cleanup Program
Southwest Regional Office

DS:jr
Enclosure

Source Control Status Report for the Wheeler-Osgood Waterway Problem Area

Milestone 2: Essential Administrative Actions in Place for Major Sources

Introduction

This report identifies the administrative actions in place to control the major sources of problem chemicals to the Wheeler-Osgood Waterway Problem Area. The Milestone 1 Report for the Wheeler-Osgood Waterway Problem Area (submitted to EPA in July, 1993) and the Commencement Bay Nearshore/Tideflats Record of Decision (CB/NT ROD) list one major source: City of Tacoma Storm Drain #254. This report describes the administrative actions in place to control this major source.

Three other confirmed sources were listed in the Milestone 1 Report; when administrative actions are in place to control these sources, Ecology will describe those actions in a Milestone 4 Report for the Wheeler-Osgood Waterway Problem Area. Ecology has determined that none of these other sources are currently of a magnitude that they should be considered major sources.

Major sources are those that have been identified as such in the CB/NT ROD and the Integrated Action Plan. Control of the major sources is important because these sources are most directly linked with current sediment impacts. Milestone 2 is achieved when all necessary administrative actions (e.g., permits, orders, decrees) are in place to control the major sources of problem chemicals to the Wheeler-Osgood Waterway Problem Area. The objective of Milestone 2 is to start a process that will lead to control of the release of problem chemicals from a source.

Storm drain outfall #254 is part of the City of Tacoma's municipal stormwater system. The location of the outfall is shown in the Milestone 1 Report for Wheeler-Osgood Waterway (July 1, 1993).

The most recent water and sediment quality data associated with storm drain outfall #254 is from the City of Tacoma. Sediments collected by the City from the catch basin closest to outfall #254 in March 1993 and from solids centrifuged from water draining from the outfall in June and October 1993 all contained zinc at concentrations exceeding the Commencement Bay Sediment Quality Objective (CBSQO). Exceedances were also observed for bis-2-ethylhexyl phthalate (BEHP). Both zinc and BEHP are commonly found at elevated levels in urban stormwater.

Because the Thea Foss and Wheeler-Osgood Waterway Problem Areas are interconnected, Ecology combined the problem chemicals for all three Waterway Problem Areas when making listing decisions for each Waterway Problem Area. In the CB/NT ROD, zinc was identified as a problem chemical in the Wheeler-Osgood Waterway, and BEHP was identified as a problem chemical in the Head of Thea Foss Waterway.

Administrative Actions in Place for Major Sources

City of Tacoma Storm Drain #254:

1. Source Investigations and Source Control Work in the 1980s

a. City of Tacoma Surface Water Quality Study, 1988-1990 (City of Tacoma, 1990)

In August 1986, the City of Tacoma signed a Memorandum of Agreement (MOA) with the Department of Ecology that required the City to perform an extensive study of five major drainage basins discharging to Commencement Bay and "implement a pollution control strategy which will cause the abatement of pollutants known to be discharging from the City of Tacoma publicly owned storm drain system into the Commencement Bay Waterways and Puget Sound." One of the five drainage basins studied under this MOA was the basin associated with outfall #254 located at the head of Wheeler-Osgood Waterway.

Major elements of the City's study included:

i. Commercial/Industrial Inspections

Extensive physical inspections, block by block, were carried out by the City at all businesses within the storm drainage basin. In the areas of the drainage basin that were predominately residential or office buildings, the inspections consisted of a drive-by. All other commercial/industrial facilities were entered and inspected.

In situations where there was an illegal or inappropriate discharge into the storm drain system, the City required the owner or responsible party to stop the discharge and/or to implement best management practices (BMPs). BMPs ranged from improving "housekeeping practices" to physically discontinuing a discharge and providing appropriate engineering plans for the proper connection to the sanitary sewer. Plans were to include any required pretreatment devices. The requirements for redirection of a discharge were documented by letter from the City to the facility, and included in the correspondence was a time frame within which improvements were expected to be accomplished.

Follow-up letters and/or inspections were conducted by the City for all required source control actions, as needed, to ensure compliance.

ii. Manhole Survey

In order to develop basic information on illicit/illegal discharges into the storm water system, a manhole survey within the drainage basin was performed. The manhole survey focussed on identifying illegal sanitary discharges to the stormwater system. The manhole survey crew started investigations at the terminus of each storm outfall pipe and followed the drains upstream. Every manhole cover that could be located was removed and the presence or absence of flow was noted.

At each manhole where water flow existed, the water was sampled for fecal coliform/fecal strep ratio to determine if human sanitary waste was present. In addition, observations were made at each manhole for any side connections and any unusual color or smell. Where access was possible, side connections were also sampled for bacteria.

At each manhole sampled, maps were drawn showing connections and flow direction. An estimate of flow was made on each line and other observations were recorded. Later in the manhole survey, pH and conductivity readings were checked as requested by the Tacoma-Pierce County Health Department. When a particular problem was discovered that required additional study or remediation, it was forwarded to the City's Source Control Section for action by its staff.

iii. Sampling and Analysis at Outfall #254

Outfall sampling and analysis was performed over nine quarters for metals and organic compounds, including some of the Wheeler-Osgood and Thea Foss problem chemicals. The source testing included six wet weather sample events and nine dry weather sample events for both whole water and the particulate fraction of storm water discharges.

b. Tacoma-Pierce County Health Department (TPCHD)

Starting in the mid 1980s, the TPCHD started monitoring water from municipal stormwater drains that discharge to Thea Foss Waterway (and other waterways) for conventional pollutants once a month, and analyzed water samples for metals when certain indicators suggested that a major slug of metals might be present. TPCHD notified the City of suspicious discharges.

c. Ecology

During the 1980s, Ecology assisted the City with source discovery inspections of properties draining to the Thea Foss Waterway.

2. Source Investigations and Source Control Work in the 1990s

a. City of Tacoma, NPDES Municipal Stormwater Permit

On July 5, 1995, Ecology issued the City of Tacoma a NPDES Municipal Stormwater Permit. The permit includes an accelerated schedule of permit requirements for that portion of the city that drains to Thea Foss and Wheeler-Osgood Waterways. The accelerated schedule is needed to ensure that source control actions were adequately in place prior to sediment remediation. The City must submit a draft Stormwater Program to Ecology for review by September 1, 1995, and submit a final program to Ecology by January 1, 1996. The program is a strategy for source control actions, which will set priorities, describe how ongoing sources will be discovered (using existing information, future inspections, and/or future sampling), describe how ongoing sources will be controlled, and set schedules for implementation tasks.

Once the Ecology determines that the Thea Foss and Wheeler-Osgood Waterway Storm Drain Source Control Program has achieved source control under the Commencement Bay Nearshore/Tideflats Superfund effort, future source control needs will be carried out under the schedule established for the entire City.

b. Ecology

In 1992-1993, Ecology's Water Quality Program at the Southwest Regional Office re-inspected all facilities that have the potential to discharge stormwater runoff to outfall #254. Two facilities or properties were identified as contributing ongoing sources of problem chemicals to Wheeler-Osgood Waterway via stormwater discharges to outfall #254. One of the facilities (Kleen Blast) conducted a voluntary cleanup and the other facility (Chevron Bulk Plant) recently completed a voluntary investigation.

Ecology's Water Quality Program is responsible for issuing baseline industrial stormwater NPDES permits. All industries, including those discharging to Thea Foss outfalls, are required to have coverage under the baseline stormwater permit. Industries covered under the baseline permit were required to have a pollution prevention plan completed by November 18, 1993.

c. Tacoma-Pierce County Health Department (TPCHD)

From 1990 to 1994, the TPCHD continued monitoring major municipal stormwater drains that discharge to Thea Foss Waterway (and other waterways) for conventional pollutants once a month, and analyzed water samples for metals when certain indicators suggested that a major slug of metals might be present. TPCHD notified the City of suspicious discharges. The program was discontinued in 1995 due to budget cutbacks.

REFERENCES

1. City of Tacoma. 1990. City of Tacoma Surface Water Quality Study. Public Works Department, Sewer Utility. January 1990.